

Supplementary Table 1. Socioeconomic distribution between the excluded and included participants

SES	2011			2013			2015			2018		
	Excluded (%)	Included (%)	<i>P</i> value	Excluded (%)	Included (%)	<i>P</i> value	Excluded (%)	Included (%)	<i>P</i> value	Excluded (%)	Included (%)	<i>P</i> value
low	29.41	28.17	0.373	21.33	29.02	<0.001	22.22	29.69	<0.001	14.55	27.65	<0.001
lower-middle	58.82	47.79		40.00	47.56		45.68	46.78		43.64	47.47	
upper-middle	11.76	22.68		32.00	22.16		30.12	22.56		32.73	23.81	
high	0.00	1.35		4.67	1.26		1.98	0.97		9.09	1.06	

**Supplementary Table 2. Baseline characteristics of study sample**

	<b>2011</b>	<b>2013</b>	<b>2015</b>	<b>2018</b>
Sample size <sup>a</sup>	5451	7258	8820	11393
Sex				
Male	56.07 (56.06,56.08)	54.90 (54.89,54.91)	53.16 (53.16,53.17)	52.52 (52.52,52.53)
Female	43.93 (43.92,43.94)	45.10 (45.09,45.11)	46.84 (46.83,46.84)	47.48 (47.47,47.48)
Age group, years				
60-69	68.10 (68.09,68.11)	66.98 (66.97,66.99)	66.85 (66.84,66.85)	62.39 (62.38,62.39)
70-79	27.24 (27.23,27.25)	27.69 (27.69,27.70)	27.34 (27.33,27.34)	28.78 (28.77,28.78)
≥80	4.66 (4.66,4.66)	5.33 (5.32,5.33)	5.82 (5.81,5.82)	8.84 (8.83,8.84)
Male, years				
60-69	65.35 (65.34,65.36)	63.40 (63.39,63.41)	64.25 (64.24,64.25)	59.67 (59.67,59.68)
70-79	29.2 (29.19,29.21)	30.40 (30.39,30.41)	29.25 (29.24,29.26)	29.98 (29.97,29.99)
≥80	5.45 (5.45,5.46)	6.20 (6.20,6.20)	6.51 (6.50,6.51)	10.35 (10.34,10.35)
Female, years				
60-69	71.62 (71.61,71.63)	71.34 (71.33,71.35)	69.8 (69.79,69.81)	65.39 (65.38,65.40)
70-79	24.73 (24.72,24.74)	24.40 (24.39,24.41)	25.16 (25.15,25.17)	27.45 (27.44,27.46)
≥80	3.65 (3.64,3.65)	4.26 (4.26,4.27)	5.04 (5.03,5.04)	7.16 (7.16,7.17)

The numbers in the table are percentages (95% confidence intervals). Percentages were weighted by the individual weights with the household and individual non-response adjustment provided by the CHARLS.

<sup>a</sup> The number was counted after excluding the missing values for age, sex, and CVD.

**Supplementary Table 3. Province-level age- and sex-adjusted prevalence of CVD and comorbid CVD in 2011**

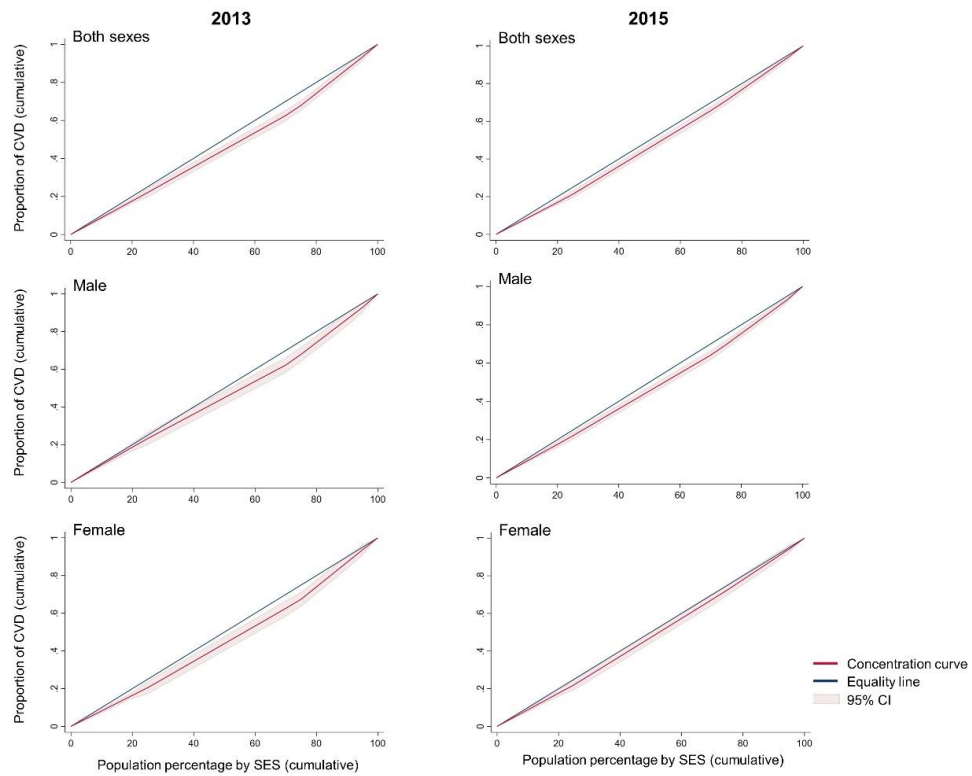
Province	CVD	Comorbid CVD
Anhui	15.79 (11.69, 15.79)	0.84 (-0.30, 1.98)
Shandong	20.80 (16.59, 25.01)	1.28 (0.67, 1.89)
Jiangsu	17.12 (9.06, 25.18)	1.94 (-0.24, 4.12)
Shanghai	24.51 (13.28, 35.74)	0.00 (0.00, 12.36)*
Zhejiang	13.88 (9.22, 18.54)	0.00 (0.00, 0.85)*
Jiangxi	17.40 (13.11, 21.69)	0.54 (-0.38, 1.46)
Fujian	15.86 (9.90, 21.82)	0.61 (-0.49, 1.71)
Beijing	26.00 (18.83, 33.17)	1.38 (-0.64, 3.40)
Hebei	30.78 (20.92, 40.64)	0.00 (0.00, 0.91)*
Tianjin	38.57 (24.40, 52.74)	11.61 (0.46, 22.76)
Shanxi	17.13 (12.638, 21.58)	0.54 (-0.38, 1.46)
Neimenggu	34.68 (31.33, 38.03)	3.20 (1.40, 5.00)
Heilongjiang	47.19 (33.78, 60.60)	4.91 (-1.22, 11.04)
Jilin	46.91 (38.76, 55.06)	3.39 (-1.27, 8.05)
Liaoning	25.30 (11.11, 39.49)	3.18 (-0.43, 6.79)
Xinjiang	28.82 (19.71, 37.93)	8.42 (-3.79, 20.63)
Qinghai	21.75 (11.11, 32.39)	0.00 (0.00, 5.59)*
Shaanxi	31.11 (19.51, 42.71)	0.81 (-0.52, 2.14)
Gansu	14.38 (10.48, 18.28)	0.00 (0.00, 0.88)*
Yunnan	11.99 (8.13, 15.85)	0.62 (0.25, 0.99)
Sichuan	15.35 (11.61, 19.09)	0.17 (-0.12, 0.46)
Chongqing	8.33 (2.18, 14.48)	0.00 (0.00, 1.95)*
Guizhou	7.37 (3.12, 11.62)	0.00 (0.00, 3.04)*
Guangdong	20.15 (13.76, 26.54)	0.00 (0.00, 0.89)*
Guangxi	18.43 (13.73, 23.13)	3.69 (0.36, 7.02)
Henan	22.62 (20.56, 24.68)	1.71 (0.22, 3.20)
Hubei	17.35 (12.86, 21.84)	1.04 (-0.43, 2.51)
Hunan	18.91 (15.72, 22.10)	0.85 (0.58, 1.12)

The numbers in the table are percentages (95% confidence intervals). Percentages were weighted by the individual weights with the household and individual non-response adjustment provided by the CHARLS.

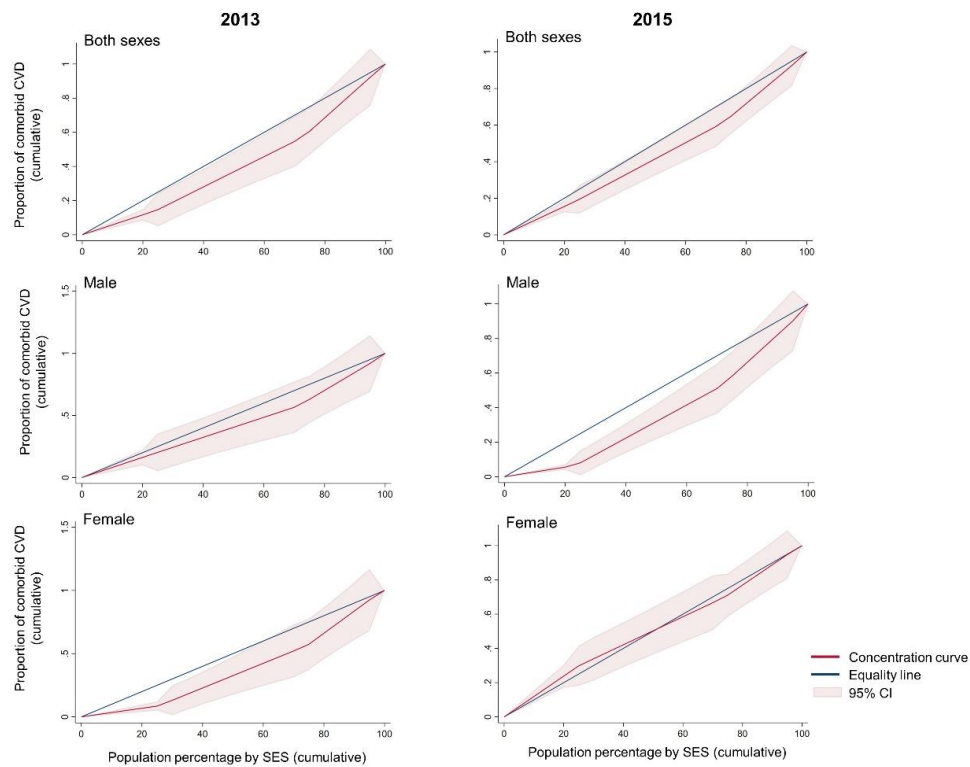
\*Wilson score intervals. The rests are binomial confidence intervals.

**Supplementary Table 4. Province-level age- and sex-adjusted prevalence change of CVD and comorbid CVD between 2011 and 2018**

CVD		Comorbid CVD	
Province	Percent change	Province	Percent change
Xinjiang	33.55	Heilongjiang	10.89
Anhui	21.09	Shaanxi	7.78
Shanxi	18.36	Qinghai	7.20
Gansu	17.48	Hebei	5.49
Heilongjiang	17.47	Neimenggu	4.48
Neimenggu	15.99	Jilin	4.33
Hebei	15.33	Henan	4.05
Shandong	15.14	Anhui	3.90
Shaanxi	14.8	Gansu	3.85
Henan	14.66	Shanxi	3.65
Liaoning	13.66	Xinjiang	2.91
Tianjin	13.55	Hubei	2.62
Shanghai	12.90	Sichuan	1.9
Hunan	10.26	Zhejiang	1.84
Yunnan	10.23	Jiangxi	1.84
Beijing	10.17	Hunan	1.77
Chongqing	9.61	Chongqing	1.51
Qinghai	9.52	Yunnan	1.39
Fujian	8.99	Shandong	1.21
Sichuan	8.61	Guangdong	0.87
Jiangxi	8.51	Liaoning	0.86
Jiangsu	7.11	Guizhou	0.83
Guizhou	6.37	Jiangsu	0.77
Hubei	4.41	Fujian	0.66
Zhejiang	3.68	Guangxi	0.29
Guangxi	3.19	Shanghai	0.00
Jilin	2.65	Beijing	-1.38
Guangdong	-7.07	Tianjin	-1.95



**Supplementary Figure 1. Concentration curve of age- and sex-adjusted prevalence of CVD in 2013 and 2015.** The figure shows the actual cumulative concentration curve for the change in the cumulative proportion of CVD burden with an increase in the cumulative percentage of the population ranked by SES in 2013 and 2015.



**Supplementary Figure 2. Concentration curve of age- and sex-adjusted prevalence of comorbid CVD in 2013 and 2015.** The figure shows the actual cumulative concentration curve for the change in the cumulative proportion of comorbid CVD burden with an increase in the cumulative percentage of the population ranked by SES in 2013 and 2015.

**Supplementary Table 5. Trends in concentration index of age- and sex-adjusted prevalence of CVD and comorbid CVD from 2011-2018**

		<b>AAPC(%)</b>	<b>95% CI</b>	<b>P value</b>
CVD	Both sexes	-5.44	-5.71 to -5.16	<0.001
	Male	-5.17	-17.07 to 6.73	0.437
	Female	-12.50	-32.15 to 7.15	0.243
Comorbid CVD	Both sexes	-21.50	-37.12 to -5.88	0.018
	Male	1.85	-38.24 to 41.94	0.927
	Female	-13.73	-99.07 to 71.61	0.755

**Supplementary Table 6. Key factors associated with the incident CVD and comorbid CVD**

Variable	CVD		Comorbid CVD	
	RR(95% CI)	P value	RR(95% CI)	P value
Age group, year				
60-69	Ref	Ref	Ref	Ref
70-79	2.34 (1.99, 2.75)	<0.001	2.99 (2.10, 4.25)	<0.001
≥80	3.33 (2.55, 4.34)	<0.001	2.72 (1.44, 5.13)	<0.001
Sex				
Male	Ref	Ref	Ref	Ref
Female	1.49 (1.29, 1.73)	<0.001	1.70 (1.23, 2.35)	0.001
Province				
Henan	Ref	Ref	Ref	Ref
Heilongjiang	2.37 (1.53, 3.57)	<0.001	2.94 (1.31, 6.58)	0.009
Sichuan	0.58 (0.42, 0.81)	0.001	0.42 (0.18, 0.94)	0.034
Hunan	0.58 (0.39, 0.86)	0.007	0.31 (0.06, 0.56)	0.038
Yunnan	0.62 (0.41, 0.93)	0.021	0.38 (0.12, 1.14)	0.084
Jiangxi	0.58 (0.37, 0.90)	0.011	0.51 (0.18, 1.39)	0.186
Jiangsu	0.48 (0.32, 0.73)	0.001	0.40 (0.14, 1.10)	0.076
Guizhou	0.42 (0.19, 0.94)	0.035	0.84 (0.27, 5.28)	0.824
Chongqing	0.39 (0.20, 0.80)	0.009	0.74 (0.21, 2.64)	0.427
Guangxi	0.32 (0.18, 0.57)	<0.001	0.38 (0.11, 1.30)	0.123
Guangdong	0.24 (0.13, 0.46)	<0.001	0.25 (0.06, 1.07)	0.062
Zhejiang	0.20 (0.10, 0.41)	<0.001	0.26 (0.06, 1.13)	0.072
Xinjiang	1.63 (0.74, 3.61)	0.229	0.91 (0.13, 6.53)	0.929
Neimenggu	1.17 (0.76, 1.78)	0.479	1.87 (0.89, 3.90)	0.096
Shaanxi	1.09 (0.71, 1.66)	0.693	1.56 (0.71, 3.41)	0.264
Hebei	1.05 (0.70, 1.59)	0.800	1.07 (0.41, 2.13)	0.879
Tianjin	1.00 (0.37, 2.70)	0.997	2.26 (0.61, 8.29)	0.22
Anhui	1.00 (0.71, 1.39)	0.984	1.24 (0.61, 2.51)	0.557
Hubei	0.73 (0.45, 1.16)	0.184	0.46 (0.13, 1.60)	0.221
Shandong	0.89 (0.65, 1.23)	0.482	0.44 (0.19, 1.04)	0.061
Liaoning	0.86 (0.55, 1.35)	0.525	0.70 (0.25, 1.94)	0.496
Shanxi	0.83 (0.53, 1.300)	0.406	0.63 (0.21, 1.89)	0.413
Jilin	0.81 (0.46, 1.42)	0.455	1.02 (0.39, 2.72)	0.961
Qinghai	0.79 (0.29, 2.13)	0.642	0.82 (0.13, 7.75)	0.994
Gansu	0.79 (0.45, 1.39)	0.418	0.52 (0.12, 2.30)	0.388
Fujian	0.62 (0.36, 1.06)	0.082	0.21 (0.03, 1.62)	0.135
Beijing	0.56 (0.24, 1.28)	0.169	1.00	-
Shanghai	0.35 (0.05, 2.46)	0.289	1.00	-
SES				
low	Ref	Ref	Ref	Ref
lower-middle	1.08 (0.89, 1.31)	0.430	1.69 (1.06, 2.71)	0.029



Variable	CVD		Comorbid CVD	
	RR(95% CI)	P value	RR(95% CI)	P value
upper-middle	1.35 (1.08, 1.68)	0.007	2.07 (1.25, 3.45)	0.005
high	1.87 (1.11, 3.15)	0.019	3.53 (1.37, 9.07)	0.009

RR: relative risk; CI: confidence interval; Ref: reference group.